

barrels of oil a day, at an annual market price of \$3 billion. By granting cheap credits and a barter system, the cost to Cuba will be substantially less. Increased oil revenues from growing U.S. imports that fill Chávez's coffers ironically help to subsidize Cuba's own consumption. Before his visit to Cuba, Chávez suggested, "We have no choice but to form an 'axis of power,'" challenging U.S.-hemispheric dominance. Chávez's declared objective is to generate good will for Venezuela throughout the region by offering similar preferential oil deals to many other Caribbean countries.

Despite climbing oil prices in the past two years, Venezuela remains a victim of increased poverty, rising crime rates and a shrinking economy. Chávez has set out to expand the state oil company to provide more jobs. To further this strategy, Venezuela will utilize its aggressive leadership in OPEC to sustain high world oil prices. With the U.S. importing 14 percent of its oil from Venezuela, Chávez bold strategy of maximizing profits to serve his policy purposes runs counter to U.S. interests.

Chávez also expanded his presidential powers to undermine the independent power of the judiciary, legislature, media and civic offices, all of which were known for their corruption under previous regimes. Up to this point, Washington has restrained itself, implicitly adjusting to Chávez's style of rule, a difficult position to maintain in light of the growing tempo of his socialist rhetoric and recent controversial policy proposals.

POTENTIAL U.S. ACTION

While the Clinton administration overlooked Chávez's political maneuvers in Latin America to maintain a semblance of amicable relations, some of his outcries evoked the wrath of Cuban-Americans wishing to punish him for pro-Castro activism. This is likely to build up the pressure on the Bush administration to "get tough on Chávez." Observers in Caracas assert that he has never concealed his goal of a unified Latin America distanced from Washington. It is doubtful whether a tougher response from Washington would hinder Chávez's defense of such a union. Former State Department official, Bernard Aronson, is already claiming that any disruption of oil agreements with Venezuela could weaken the U.S. economy. Due to economic difficulties and heightened crime, Chávez's promises of jobs and increased security have had to be delayed. However, it is important to note that he has been in office a relatively short period, and appears to have factored in U.S. scorn while seeking his public sector reforms. Whether Washington can long maintain its positive engagement policy towards Chávez's actions remains to be seen, but it is a certainty that he will continue to champion his messianic vision for Venezuela and Latin America.

FEDERAL PHOTOVOLTAIC UTILIZATION ACT

HON. JAMES L. OBERSTAR

OF MINNESOTA

IN THE HOUSE OF REPRESENTATIVES

Thursday, June 28, 2001

Mr. OBERSTAR. Mr. Speaker, the recent increase in oil prices has focused national attention on the benefits we could achieve by reducing our dependence on fossil fuels by meeting more of our energy needs from renewable sources, such as solar, wind, biomass and geothermal energy. Today, I am introducing legislation to promote one of the most promising of these technologies, solar photovoltaics.

Quite simple, a photovoltaic, or PV, system converts light energy into electricity. The term "photo" is a stem word from the Greek "phos" which means light. "Volt" is named for Alessandro Volta, a pioneer in the study of electricity. Photovoltaic literally means "light electricity".

PV generated power offers distinct advantages over diesel generators, primary batteries, and in some instances, over conventional utility power lines. PV systems are highly reliable, and have no moving parts, so the need for maintenance is virtually non-existent. This is one of the main reasons they are used in satellites today, for which maintenance is both costly and time consuming. In addition, PV cells use sunlight to produce electricity—and sunlight is free!

The potential for photovoltaics is boundless. By way of illustration, solar panels in 1% of the Mojave Desert would provide enough energy to meet California's expected electric shortfall. The electricity needs of the entire United States could be met by panels in a 100 by 100 mile area in the South-Western United States.

PV cells are ideal for supplying power to remote communication stations, such as those in our National Park system, and on navigational buoys. Because they burn no fuel and have no moving parts, PV systems are clean and silent. Compared to the alternative of burning kerosene and diesel fuels that contribute to global warming, this quiet, clean source of power becomes even more attractive.

Another important feature of PV systems is their modularity—they can easily be adapted to any size, based on energy consumption. Homeowners can add modules as their needs expand, and ranchers, for example, can use mobile stations to produce electricity for pumps to water cattle as the animals are rotated to different grazing areas. After Hurricane Andrew in 1993 the Florida Solar Energy Center deployed several PV emergency systems right at the disaster locations where the energy was needed.

Because a PV system can be placed closer to the user, shorter power lines can be used if power were brought in from a grid. Shorter lines, lower construction costs, and reduced paper work make PV systems especially attractive. Transmission and distribution upgrades are kept to a minimum, which is especially important in urban areas. PV systems can be sized, sited, and installed faster than traditional energy systems.

I have had a longstanding interest in promoting the development of this technology. In June 1977 I introduced H.R. 7629, which established a program for the Federal government to encourage the development of PV technology by using it in federal facilities. At that time, photovoltaic technology was in its early developmental stage, and produced energy at a cost of more than \$1.00 per kilowatt hour, compared to less than \$.10 a hour for energy from fossil fuels. In these circumstances, there is a "chicken and egg" problem: because the technology is expensive, consumers will not purchase it, but, unless there are purchases, the produces will not be able to make the investments and engage in the large-scale production needed to bring the cost down.

The Federal government, which purchases billions of dollars of energy each year, is in a

unique position of facilitate a breakthrough for photovoltaics. Under my 1977 bill, the Federal government would have purchased substantial quantities of photovoltaic technology. These purchases would have given industry the resources and incentives to develop the technology and mass production efficiencies necessary to make photovoltaics competitive.

My 1977 bill became part of a larger bill to establish a comprehensive national energy policy, PL 95-619. Most unfortunately, the Reagan administration chose not to fund the bill, resulting in not only a lackluster renewable energy program but also a serious deterioration of national focus.

The collapse of the oil cartel and the return of low oil and gas prices in the early 1980's had a chilling effect on federal renewable energy programs. Despite Congress' consistent support for a broader, more aggressive renewable energy program than either the Reagan or George H.W. Bush administrations supported, federal spending fell steadily through 1990. Funding for renewable energy R&D grew from less than \$1 million on the early 1970's to over \$1.3 billion in FY 1997, but then nose-dived during the Reagan and Bush administrations. Funding steadily declined during the 1980's to \$136 million in FY 1990.

The trend was reversed during the Clinton administration. In June 1997 President Clinton announced the Million Solar Roofs Initiative. The program called for the installation of one million solar energy systems on homes and other buildings by 2010. In October 1997, President Clinton committed to placing 20,000 solar energy systems on Federal Buildings. So far the results have been encouraging—over 2000 solar systems have been installed in federal facilities through the year 2000. For example, the U.S. Coast Guard Air Station in San Francisco developed a solar hot water heating project, which qualified as part of the Federal commitment. The project was completed easily and quickly, cost less than \$10,000 and has energy savings of \$1,100 per year, which means that has a 9-year payback period.

Just across the Anacostia River, here in the Nation's Capitol, at the Suitland Federal Center, the General Services Administration has installed a large PV system to supply electricity for the Federal center. From the Presidio in San Francisco to Fort Dix in New Jersey, the Federal government has installed numerous effective PV systems. Solar power is used extensively for diverse purposes in our National Park and National Forests—supplying lighting to the Tonto National Forest in Arizona and drinking water to hikers in the Rocks National Park in Lakeshore Michigan. The isolated research facilities at Farallon National Wildlife Refuge, California are powered by PV systems.

During disaster relief activities solar power systems step in quickly to supply efficient, easy to install, mobile power sources. In addition to solar power in federal buildings, national parks, communications, and disaster relief activities, solar power is used extensively in transportation support—bus stop lighting, parking lot lights, railroad signal lights, traffic monitoring and control, Coast Guard light-houses, beacons and buoys. Furthermore, the government is leading the way with innovative technologies for solar powered vehicles. The Department of Energy is the chief sponsor of the American Solar Challenge, which this year